

REMARKS

Claims 1-7 are pending in the application. Claims 1-7 stand rejected.

Claim Rejections under 35 USC §103

Claims 1-3 and 7 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Kanamaru et al., U.S. Patent No. 6,496,023 in view of Hasegawa, U.S. Patent No. 6,657,448.

The present invention is a probe sheet that includes a base plate (100) mounted to a prober of the instrument and a probe sheet (200) mounted to a lower surface of the base plate (100). The probe sheet (200) includes a flexible sheet member (210) and a number of probes (220) provided on one surface of the sheet member (210). The probe (220) has a shape capable of elastic deformation in a direction, upward or downward. As indicated in Figures 4(a) through 4(f) the probe (220) may take a number of shapes. Further, as indicated in Figures 5(a) and 5(b) the probe (220) may be reinforced by a reinforcing member (230) made of alumina with an elasticity higher than the probe (220).

Kanamaru et al. describes a number of probes (6) located on a sheet material (29). As stated in column 12, lines 51-59 of Kanamaru et al.,

“FIG. 16A shows a state before pressing, while FIG. 16B shows a state after pressing. The probes 6 are formed on a sheet material 29 which is easily deformable and in which wiring is formed in its interior. If a pressing jig 28 is pressed by a pressing mechanism 27 in the direction of arrows 31, the pressing jig 28 deforms the sheet material 29 as shown in FIG. 16B, with the result that the probes 6 come into contact with the electrode pads (not shown) in an obliquely maintained state...” (Emphasis Added)

Hasegawa describes an electrical connection apparatus having probe elements (42). As stated in column 9, lines 21-30,

“When the projection electrode 40 is pressed on the IC chip electrode, the probe element 42 itself is elastically deformed by the overdrive of the projection electrode, and the elastic member 18 acts as a reaction body of the probe element 42. With this, if the projection electrodes 40 are a little different from each other in their height, such height difference is absorbed by the elastic deformation of the probe element 42 and the elastic member 18 as well, so that the sure electrical contact can be obtained between the projection electrode 40 and the IC chip electrode.” (Emphasis Added)

However, Kanamaru et al. and Hasegawa fail to describe the probe element (220) as illustrated in Figures 2, 3, 5 and 6 of the present application. Specifically, the prior art of record fails to describe the probe element (220) in which only “one end of each probe being supported by the sheet member”. Further, the prior art of record fails to describe the probe element (220) having a supporting portion, a contacting portion, and an abutting portion in which “each probe being

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elastically deformable such that a force acting on the contacting portion by contacting with the measurement object causes the contacting portion to be displaced toward the sheet member and the abutting portion to abut the surface of the sheet member, and then the abutting portion slides in a horizontal direction on the surface of the sheet member while the contacting portion slides in the same direction as the abutting portion on the surface of the measurement object". Due to these amendments to the claim 1, it now distinguishes over Kanamaru et al. and Hasegawa. Therefore, withdrawal of the rejection of claims 1-3 and 7 under 35 U.S.C. §103(a) as being unpatentable over Kanamaru et al., U.S. Patent No. 6,496,023 in view of Hasegawa, U.S. Patent No. 6,657,448 is respectfully requested.

Claim 4 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Kanamaru et al. ('023) in view of Hasegawa ('448) as applied to claims 1-3 above, and further in view of Takayama et al., U.S. Patent No. 5,977,783.

Takayama et al. describes a probe structure containing a contact part (2) formed on one side (1a) of an insulating substrate (1). An intermediate layer (2b) is provided with a hardness set to 10-300 Hk.

Claim 4 is allowable by virtue of its dependence upon an allowable independent claim. Therefore, withdrawal of the rejection of claim 4 under 35 U.S.C. §103(a) as being unpatentable over Kanamaru et al. ('023) in view of Hasegawa ('448) as applied to claims 1-3 above, and further in view of Takayama et al., U.S. Patent No. 5,977,783 is respectfully requested.

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Claims 5 and 7 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Kanamaru et al. ('023) in view of Hasegawa ('448) as applied to claims 1-3 above, and further in view of Jitsumori et al., U.S. Patent No. 6,232,791.

Jitsumori et al. describes a testing board having probe terminals (14) which expand laterally after extending through an elastic sheet (13).

Claims 5 and 7 are allowable by virtue of theirs dependence upon an allowable independent claim. Therefore, withdrawal of the rejection of claims 5 and 7 under 35 U.S.C. §103(a) as being unpatentable over Kanamaru et al. ('023) in view of Hasegawa ('448) as applied to claims 1-3 above, and further in view of Jitsumori et al., U.S. Patent No. 6,232,791 is respectfully requested.

Conclusion

In view of the aforementioned amendments and accompanying remarks, claims 1-7, as amended, are believed to be patentable and are in condition for allowance, which action, at an early date, is respectfully requested.

If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact the applicants' undersigned attorney at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

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In the event that this paper is not timely filed, the applicants respectfully petition for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

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